**CALFED Bay-Delta Program Project Information Form**
**Watershed Program - Full Proposal Cover Sheet**

Attach to the cover of full proposal. All applicants must fill out this Information Form for their proposal. Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding.

1. Full Proposal Title: Middle Creek Ecosystem Restoration Project - Design Phase
   Concept Proposal Title/Number: Middle Creek Ecosystem Restoration Project - Design Phase, WSP01-0108
   Applicant: Lake County Flood Control and Water Conservation District
   Applicant Name: Robert L. A. Lossius
   Applicant Mailing Address: 255 N. Forbes Street, Lakeport, CA 95453
   Applicant Telephone: 707/263-2341 Applicant Fax: 707/263-7748 Applicant Email: bob_l@co.lake.ca.us
   Fiscal Agent Name (if different from above): Patricia Beristianos
   Fiscal Agent Mailing Address: 255 N. Forbes Street, Lakeport, CA 95453
   Fiscal Agent Telephone: 707/263-2341 Fiscal Agent Fax: 707/263-7748 Fiscal Agent Email: pat_b@co.lake.ca.us

2. Type of Project: Indicate the primary topic for which you are applying (check only one)

| | |
|---|---|
| _____Assessment | _____Monitoring |
| _____Capacity Building | _____Outreach |
| _____Education | _____Planning |
| __X__Implementation | _____Research |

3. Type of Applicant:

| | |
|---|---|
| _____Academic Institution/University | _____Non-Profit |
| _____Federal Agency | _____Private party |
| _____Joint Venture | _____State Agency |
| __X__Local Government | _____Tribe or Tribal Government |

4. Location (including County): Upper Lake, Lake County

   What major watershed is the project primarily located in:
   - _____Klamath River (Coast and Cascade Ranges)
   - __X__Sacramento River (Coast, Cascade and Sierra Ranges)
   - _____San Joaquin River (Coast and Sierra Ranges)
   - _____Bay-Delta (Coast and Sierra Ranges)
   - _____Southern CA (Coast and Sierra Ranges)
   - _____Tulare Basin (Coast, Sierra and Tehachapi Ranges)

5. Amount of funding requested: $135,818.00__
   Cost share/in-kind partners? __X__Yes _____No
   Identify partners and amount contributed by each:
   US Army Corps of Engineers, $750,000
   California State Reclamation Board/Department of Water Resources, $175,000

6. Have you received funding from CALFED before? __X__Yes ____No
   If yes, identify project title and source of funds: Partners have received funding numerous times.
   US Army Corps of Engineers, State Reclamation Board, Department of Water Resources

By signing below, the applicant declares the following:

1. The truthfulness of all representations in their proposal
2. The individual signing this form is entitled to submit the application on behalf of the applicant (if the applicant is an entity or an organization)
3. The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the Watershed Program Proposal Solicitation Package and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent provided in the Proposal Solicitation Package.

Robert L. A. Lossius

Printed name of applicant

_____

Signature of applicant

**1. Describe your project, its underlying assumptions, expected outcomes, timetable for completion, and general methodology or process.**

This project is the third phase of the Middle Creek Ecosystem Restoration Project (Project). Phase one, the Reconnaissance Study, has been completed and phase two, the Feasibility Study and environmental documentation, is nearly complete. Phase three is to prepare detailed plans, specifications and cost estimates of the selected alternative for the construction phase of the Project. Phase four is to acquire land and to construct the restoration project.

Background

The Project consists of restoration of up to 1,218 acres of wetland and open water and 480 acres of floodplain of previously reclaimed land at the north end of Clear Lake. The Project has multiple goals of wetland and habitat restoration, flood damage reduction, water quality improvement, preserve existing resources and enhance recreation and tourism.

The Project is located at the north end of Clear Lake in the area bounded by State Highway 20 and Rodman Slough. Clear Lake is the largest, natural freshwater lake entirely contained within the State of California. Clear Lake is a natural, shallow, eutrophic lake. It is the headwaters of Cache Creek, a tributary of the Sacramento River and the Bay-Delta.

The Project area was reclaimed from Clear Lake for agricultural and residential purposes between 1900 and 1958. Levees were constructed by private property owners, reclamation districts and the U.S. Army Corps of Engineers (Corps). Most of the land behind the levees is below the normal high water level of Clear Lake. Because of the deep alluvial and lacustrine soils in the Project area, the levees are subject to settlement and failure. Although the current levees (constructed by the Corps) were designed to provide a 100-year level of protection, estimates by the Corps estimate the levees currently provide a four-year level of protection.

Restoration in the Project area consists of:

- Acquiring property below the 100-year floodplain of Clear Lake in fee,
- Removal of structures, appurtenances and unnecessary infrastructure,
- Retrofit of infrastructure, primarily road and utilities passing through the Project area,
- Construct some passive recreation opportunities, such as trails, in the upland areas,
- Construction of channels to direct low and high flows through the Project area,
- Placement of pilot plantings of native plants, and
- Breaching of the levees to allow flooding and flow.
- The area will be allowed to revegetate naturally and will not be actively maintained, except for the initial years when maintenance will be to ensure the Project area receives flows as designed. The hydrology (levels) of Clear Lake determine the type of vegetation on the shoreline, therefore, vegetation types are predictable.

Restoration of the Project area will significantly increase the shoreline habitat around Clear Lake. Approximately 995 acres of wetland and riparian habitat will be restored below the normal high water level of Clear Lake. This is a 56 percent increase in the existing wetland habitat in Clear Lake. The 480 acre upland area will be converted from orchard, vineyard and pasture to natural habitat, such as valley oak grassland.

The Scotts Creek and Middle Creek watersheds, which comprise approximately one half of the Clear Lake watershed, drain through Rodman Slough adjacent to the project area. These two watersheds provide 57 percent of the inflow and 71 percent of the phosphorus loading to Clear Lake. Restoration of flows from Scotts and Middle Creeks into the Project area will result in settling of some of the suspended sediments prior to entering Clear Lake and reducing the nutrient loading to Clear Lake. The reduced nutrient loading will result improved water quality and in a reduction of blue-green algal blooms in Clear Lake. Improved water quality will result in increased tourism and quality of life within Lake County.

By removing the structures and properties behind the levee and within the 100-year floodplain from risk, significant flood protection benefits are provided.

Prior Phases

The Corps, in partnership with the Lake County Flood Control and Water Conservation District (District) and the State Reclamation Board (Board), have completed a Reconnaissance Study and have nearly completed a Feasibility Study and EIS/EIR (Study) (scheduled completion November 2001) for the Project. Five alternatives were considered during the Study, including no action, full restoration, two smaller restoration projects, and levee reconstruction. Based on Study work completed at this time, full restoration of the area to its pre-European condition appears to be the most feasible and environmentally acceptable alternative. The Project is an excellent example of how a project that was developed to remove property owners and residents from flood risk can serve multiple objectives and provide multiple benefits.

The Feasibility Study and EIS/EIR are scheduled for completion by November 2001. Funding for design work is anticipated to be available in Fiscal Year 2002. Due to the time required to complete the necessary agreements, work on design should be able to begin as soon as all agreements are executed.

Design Phase

The District and the Board will negotiate a scope of work and design budget for the design engineering with the Corps. Agreements to complete the work and delineating cost sharing will be executed. These negotiations are anticipated to begin in Summer 2001. This scope of work and budget will be used to develop the grant agreement with CALFED. Project agreements will be developed between the Corps and the Board, between the Board and the District, and between the District and CALFED. Based on the past experience of District staff, full execution of all agreements will be six to nine months after the grant is awarded.

The Corps will perform the design work, with cooperation of and oversight by the Board and the District. Design work includes preparation of detailed plans and specifications, real estate requirements and detailed cost estimates. The design phase will take approximately 18 months from the date all contracts are executed.

Future Phase

The next phase of the project includes land acquisition and construction. Reconnaissance Study estimates place the land acquisition and construction cost at approximately $18 million.

**2. Describe your qualifications and readiness to implement the proposed project.**

The District has successfully administered numerous grants over the last twenty-five years. Grant projects include water quality planning, watershed analysis, nonpoint source implementation grants, ecosystem technician training, education and outreach, aquatic vegetation management, flood hazard mitigation and ecosystem restoration. District staff is accustomed to working with State and Federal agencies in the administration of these grants.

The District's fiscal agent is Patricia Beristianos, Deputy Director - Administration, Lake County Department of Public Works. Pat has over 20 years experience in public works administration and has administered grants from numerous federal and state sources.

For the last six years, the District has been working with the USACE and the Reclamation Board on the Reconnaissance and Feasibility phases of the Middle Creek Ecosystem Restoration Project. This experience has accustomed staff to working with the USACE and Board.

Designs and cost estimates will be conducted by USACE staff. Project oversight is provided by technical and administrative staff by both the District and the Board. All technical reports prepared by the USACE are reviewed by technical staff with the District and Board.

Previous projects include:

**Project:** Middle Creek Ecosystem Restoration Project – Feasibility Study
**Objective:** Reconnaissance and feasibility study for restoration of the historic Robinson Lake wetland and floodplain areas by breaching the existing levee system to create inlets that direct flows into the historically flooded area. This project will help reduce nutrient inputs to Clear Lake by reducing sediment through the restoration of the historic Robinson Lake. Three alternative restoration projects have been selected for future study. Up to 1,218 acres of wetland habitat are proposed for restoration, including open water, seasonal wetlands, instream aquatic habitat, shaded aquatic habitat, and perennial wetlands.
**Primary Party:** US Army Corps of Engineers
**Grant Partners:** State Reclamation Board, State Water Resources Control Board, Lake County Flood Control/Public Works
**Providing Agency / Source:** US Army Corps of Engineers, Prop 204 - Delta Tributaries Watershed Program, State Reclamation Board
**Funding Amount:** $ 1,371,000
**Start Date / Ending Date:** April 99 / In Progress (Oct. 01)

**Project:** Middle Creek Stream Restoration Project
**Objective:** Creek restoration projects (bank stabilization) as a result of past gravel mining.
**Primary Party:** Robinson Rancheria
**Grant Partners:** Upper Lake Rancheria, Middle Creek CRMP, West Lake RCD, Lake County Flood Control/Public Works
**Providing Agency / Source:** Bureau of Indian Affairs
**Funding Amount:** $117,000
**Start Date / Ending Date:** In progress

**Project:** Wetlands Planning Partnership
**Objective:** Update of existing wetlands information into a Geographical Information System. Update the current wetlands policy to include CEQA threshold criteria and a wetlands impact mitigation program. Develop a model site management plan for future efforts.
**Primary Party:** Lake County Flood Control/Public Works
**Grant Partners:** Lake County Community Development, Lake County Land Trust, Robinson Rancheria, Big Valley Rancheria, UC Davis, East Lake and West Lake RCD
**Providing Agency / Source:** EPA - Wetland Program Development Grants
**Funding Amount:** $56,250
**Start Date / Ending Date: August** 2000 / In progress

**Project:** Upper Lake Watershed Analysis
**Objective:** To produce a Federal Watershed Analysis on the Upper Lake Management Area Watershed by characterizing the watershed, defining issues and key questions, describing current and reference conditions, and developing recommendations towards improved land use.
**Primary Party:** Lake County Flood Control/Public Works
**Grant Partners:** USFS
**Providing Agency / Source:** USFS
**Funding Amount:** $46,605
**Start Date / Ending Date:** October 1997 / September 1999

**Project:** Scotts Creek Watershed Project
**Objective:** The Scotts Creek Watershed Project was proposed and funded as a means of demonstrating that a cooperative erosion control program can help mitigate impacts to Clear Lake.
**Primary Party:** Lake County Flood Control/Public Works
**Grant Partners:** Lake County Planning Dept., Lake County Career Center, BLM, NRCS, Westlake RCD, U.C. Davis Hopland Field Station, Clear Lake High School, Fuller Productions, RWQCB, Lake County Board of Supervisors
**Providing Agency / Source:** EPA (319h)
**Funding Amount:** $120,297
**Start Date / Ending Date:** May 1994 / January 1998

**Project:** Community Entrepreneurial Watershed and Water Quality Program
**Objective:** This project was directed towards improving the community's ability to use proper ecosystem management. The goal was to enable the community to implement Best Management Practices throughout the Clear Lake Basin to control erosion and the nutrient loading of Clear Lake, which in turn may reduce the impacts of algal blooms.
**Primary Party:** Lake County Dept. of Flood Control/Public Works
**Grant Partners:** Lake County Career Center, Health and Environment Consultants, UC Davis- CLERC, Lake County Office of Education, The Many Lake County School Districts
**Providing Agency / Source:** USFS Mendocino National Forest- Rural Communities Program
**Funding Amount:** $79,998
**Start Date / Ending Date: July** 1996 / January 1998

**Project:** Watershed Awareness Program
**Objective:** The long term goal of the Watershed Awareness Program is to encourage widespread public understanding of solutions to the Clear Lake basin's erosion problems which cause nuisance blue-green algae blooms that significantly compromise water quality, tourism, and economic vitality.
**Primary Party:** Lake County Flood Control/Public Works
**Grant Partners: Office** of Education, UC Davis, Yuba Community College, Mendocino Community College, Community Development Services, Oak Hills Middle School, Upper Lake Middle School and Clear Lake High School
**Providing Agency / Source:** USFS Mendocino NF/ National Forest Dependent Rural Communities
**Funding Amount:** $84,829
**Start Date / Ending Date:** May 1995 / September 1996

**Project:** Clean Lakes Grant
**Objective:** Diagnosis of the *Causes and Control of Algal Blooms in Clear Lake* with recommended actions.
**Primary Party:** Lake County Flood Control/Public Works
**Grant Partners:**
**Providing Agency / Source: EPA** / State Water Resources Control Board
**Funding Amount:** $100,000
**Start Date / Ending Date:** 1990 / 1994

**3. Provide a completed budget cost sheet and describe the basis for determining project costs.**

Attached is the budget breakdown for the project. The total costs for the Project design is $1,060,818. We are requesting CALFED fund $135,818 of the Project design costs.

Administrative costs are costs for District staff to oversee the grant and the Project. Costs are based on an estimate of time spent on the project and the employee's current billable hourly rates. Time estimates are based on experience with USACE project administration. The billable hourly rates include direct and indirect salary costs, and administrative overhead. Administrative overhead includes clerical and accounting services, rent, copies and all indirect costs. Travel costs estimates are also provided for monthly trips to Sacramento to meet with the Corps and the Reclamation Board.

Design costs are an estimate at this time. As the Feasibility Study has not been completed, detailed design costs have not been developed. Based on the apparent preferred alternative of full restoration, USACE staff felt that one million dollars was a reasonable estimate of design costs. A more accurate estimate of design costs will be developed in the next few months, as the full scope of design work is developed. Design costs are paid according to the following formula:

- The USACE pays 75 percent of all eligible design costs. The remaining 25 percent is considered the "local share".
- The Reclamation Board pays 70 percent of the local share for flood control projects in the Central Valley watershed.
- The remaining 30 percent of the local share is being requested of CALFED.

Reports and presentations costs are costs for the District staff to prepare the reports and presentation to CALFED. Costs are based on an estimate of time spent on the project and the employee's current billable hourly rates. Time estimates are based on experience with grant project administration. The billable hourly rates include direct and indirect salary costs, and administrative overhead. Administrative overhead includes clerical and accounting services, rent, copies and all indirect costs. Travel costs estimates are also provided one trip to Sacramento to make a presentation to CALFED.

**4. Describe the technical feasibility of the proposed project.**

The Project consists of restoring 1218 acres of riparian, wetland and open water habitat, and 500 acres of floodplain habitat. This habitat was reclaimed between 1900 and 1958 from the body of Clear Lake and its floodplain. Restoration consists of acquiring property, relocating homeowners, protecting infrastructure, providing some passive recreation, construction of pilot channels, pilot plantings for habitat and breaching the existing levee system, breaching the levees to allow flooding, and allowing the area to revegetate and operate as a natural habitat. Below is a discussion of the technical issues and their feasibility:

**Property acquisition and relocation:** Preliminary estimates place the cost of land acquisition, relocation and demolition at $13 million. This is the single largest cost in the restoration project.

**Protecting infrastructure:** infrastructure in the project area has received some protection from flooding by the existence of the levee system. Infrastructure in the project area that must be protected include: raising the elevation of approximately 2,000 feet of State Highway 20 up to three feet to place it above the 100-year floodplain, protecting the base of the PG&E transmission towers from floodwaters, elevating approximately 1,000 feet of the Nice-Lucerne Cutoff up to three feet to place it above the 100-year floodplain, and relocate wastewater force mains and utility cables (including fiber optic lines) above the normal water level. Investigations during the Feasibility Study have shown that each of these tasks in technically feasible.

**Pilot plantings/restoration potential:** Natural revegetation of the area will be rapid as the native soils have not been altered substantially since their reclamation and native vegetation communities exist in the project area. Pilot plantings will be used primarily to stabilize disturbed areas and protect significant cultural areas. Hydrology of the project area is controlled by Clear Lake. The annual level fluctuation of Clear Lake determines the riparian and wetland habitat types along the shoreline. Because the project is small in comparison to Clear Lake, the hydrology of Clear Lake will not be significantly affected by the project. This simplifies the ability to predict the ultimate habitat for any given area.

**Pilot channels:** Pilot channels will be used to direct water throughout the project site. Pilot channels will also provide for habitat diversity and improve circulation in the project area. Historical maps and aerial photographs show the locations and configuration of the old stream channels, which will be mimicked in the restoration project.

**Levee breaches:** A two dimensional hydraulic model of project was developed and used to locate and size the levee breaches to ensure proper flow through the Project area during normal and high flows. A bridge on the elevated section of the Nice-Lucerne Cutoff is necessary to ensure proper flow through Project area. The hydraulic model was also used to estimate the sediment and nutrient trap efficiency of the project.

**5. Describe how the monitoring component of the project will help determine the effectiveness of project implementation and assist the project proponent and CALFED with adaptive management processes.**

This project proposal is for design services in a phased project. Therefore, extensive monitoring is not proposed during the design phase. Following is a discussion of the existing monitoring program and a proposed monitoring program for construction and post-construction.

Existing Monitoring Program:

The California Department of Water Resources (DWR) monitors each arm (3) of Clear Lake ten times a year. Parameters monitored include physical parameters (temperature, pH, dissolved oxygen, Secchi depth, etc.), nutrients (ortho-phosphate, total phosphorus, ammonia nitrogen, Kjeldahl nitrogen, total nitrogen, etc.), metals (iron, copper, mercury, arsenic, etc.) and phytoplankton species. This dataset extends back to 1968 and was instrumental in evaluating the water quality by the Clear Lake Algal Research Unit in the 1970's and during the Clean Lakes Study (1990-1994). The data shows several major changes in water quality during the past 33 years.

The District has been monitoring sediment and phosphorus inflows to Clear Lake since the 1992. Sediment and phosphorus concentrations are measured at gaging stations on Scotts, Middle and Kelsey Creeks. This data is used to estimate sediment and phosphorus loads to the Project area and Clear Lake.

Because flows are very difficult to measure in the lower reaches of creeks where backwater effects from Clear Lake occur, this is only an estimate of loading to the project area and to Clear Lake. Due to this limitation, we have been unable to determine the actual sediment/nutrient inflow from Scotts and Middle Creeks into the project area or the sediment/nutrient outflow from Rodman Slough to Clear Lake.

Proposed Monitoring Program:

No additional monitoring is proposed in this phase of the Project.

The existing monitoring programs will be continued to monitor any changes in water quality in Clear Lake after the project is constructed.

We have evaluated possible methods of evaluating the sediment and nutrient removal efficiency of the restored Project. Because flow velocities are very low, and may change direction across the levee breaches and bridge opening, it was not felt that outflows from the Project area to Clear Lake could be accurately monitored. Without the ability to accurately measure outflow, sediment or nutrients from the Project site into Clear Lake and the high costs (over $200,000) an additional monitoring program was determined not to be beneficial. Indirect evidence of nutrient removal by monitoring water quality in Clear Lake was felt to be the best method of determining the water quality benefits of the Project.

Photographic monitoring to the Project area prior to and after restoration is proposed. Aerial photographs will show the areal extent of the new vegetation. Photographic monitoring points will also be established to document the changes in vegetation.

We will work with the local chapter of the Audubon Society and the Lake County Land Trust to monitor the numbers and types of birds in the Project area. Bird counts are currently conducted on the Land Trust property adjacent to the southwest corner of the Project across Rodman Slough. Changes in the bird counts will provide evidence of the habitat changes in the area.

**6. If this project is to develop specific watershed conservation, maintenance or restoration actions, describe the scientific basis for the action(s) described in the proposal.**

The Middle Creek Ecosystem Restoration Project (Project) is one step in the process of restoring damaged habitat and the water quality of the Clear Lake watershed. Reconnection of this large, previously reclaimed area, as a functional wetland is anticipated to have a significant affect on the watershed health and the water quality of Clear Lake.

In 1994, the EPA Clean Lakes Diagnostic/Feasibility Study for Clear Lake was completed. Sediment nutrients are primarily responsible for the cultural eutrophication of Clear Lake and the resulting chronic blue-green algal blooms. The Clean Lakes Study identified a significant degradation in Clear Lake's water quality between 1920 and 1940. The Clean Lakes Study recommends numerous actions be taken to reduce the frequency and magnitude of the blue-green algal blooms. The County of Lake adopted an Implementation Plan on July 19, 1994 identifying the recommended actions and a time line for their implementation. The Plan is to improve the watershed health of the Clear Lake watershed and improve the quality of Clear Lake.

The District is currently implementing stream bank rehabilitation projects and actively encouraging the implementation of erosion control projects within the Clear Lake watershed. The District is cooperating with the USDA Forest Service, USDA Natural Resources Conservation Service, the USDI Bureau of Land Management, Eastlake and Westlake Resource Conservation Districts, and local Coordinating Resource Management Planning (CRMP) groups to improve- management of the watershed. Restoration of Middle Creek Ecosystem is one step in reducing the nuisance blue-green algal blooms in Clear Lake by addressing one of the largest sediment sources within the watershed.

The Middle Creek Ecosystem project area (Robinson Lake) was "reclaimed" in between 1900 and 1940 by constructing levees, creating a slough and reclaiming approximately 1,020 acres of lake bottom and shoreline wetlands for agricultural purposes [2]. In 1958, the U.S. Army Corps of Engineers (USACE) added to the levee system, reclaiming an additional 200 acres of shoreline wetlands. These projects resulted in the physical isolation of over 1,700 acres of marsh and floodplain from the largest tributaries of Clear Lake. A recent sediment core collected by the University of California, Davis (UCD), shows an abrupt increase in sedimentation rates around 1927, corresponding to the beginning of the large-scale reclamation of Robinson Lake [3] and other major construction projects in the Clear Lake watershed.

The Project consists of reconnecting Scotts and Middle Creek to the historic Robinson Lake wetland and floodplain areas by breaching the existing levee system to create inlets that direct flows into the historically flooded area. Diversion of flows through the wetland area is estimated to reduce the phosphorus load from Middle and Scotts Creeks to Clear Lake by 40 percent. Based on Vollenweider's phosphorus mass-balance model, this would result in a 28 percent decrease in the average phosphorus levels in Clear Lake, and a 33 percent decrease in average chlorophyll levels.

**7. A. How will the proposal address multiple CALFED objectives in an integrated fashion?**

The Project was conceived and evaluated to have multiple benefits. The Project would provide the following habitat benefits:

- Restore up to 1,218 acres of the 7,520 acres of historic wetlands in the Clear Lake Basin that have either been lost or severely impacted. This is up to an 81 percent increase in the Basin's existing wetland habitat. Of the historic 9,300 acres of freshwater wetlands that existed in the Clear Lake Basin, approximately 7,520 acres (80 percent) have been lost or severely impacted. Restored habitat includes open water, seasonal wetlands, instream aquatic habitat, shaded aquatic habitat, and perennial wetlands. Additional upland habitat may be protected adjacent to the wetland and stream areas.
- Provide a significant increase in habitat for fish and wildlife. This Project would greatly improve the bird-nesting habitat and increase the available spawning habitat for native and non-native fish. The area is currently used extensively by migratory waterfowl.
- Preserve the fish and wildlife resources and the cultural resources in the project area.
- Several special-status wildlife species could benefit from the creation of wetland, open water, and riparian habitats in the expanded floodplain. Some species include the California red-legged frog, northwestern pond turtle, American white pelican, double-crested cormorant, western least bittern, osprey, white-tailed kite, bald eagle, northern harrier, Cooper's hawk, American peregrine falcon, California yellow warbler, yellow-breasted chat, tricolored blackbird, fringed myotis, long-eared myotis, long-legged myotis, pallid bat, and Townsend's western big-eared bat.

The Project will reduce the amount of sediment and nutrient inputs to Clear Lake producing the following water quality benefits:

- Sediment is the primary nutrient source (97 percent of Clear Lake's total phosphorus load is sediment bound) contributing to the cultural eutrophication of Clear Lake. It has been estimated that the current sediment and phosphorus load is twice the pre-European sediment load;
- Approximately 71 percent of the phosphorus entering Clear Lake is from Scotts and Middle Creeks. It has been estimated that the Project would remove up to 40 percent of phosphorus entering Clear Lake from Middle and Scotts Creeks;
- Reduced phosphorus concentrations in Clear Lake would potentially reduce the chlorophyll concentrations by 33 percent. A corresponding reduction in total organic carbon would also be realized;
- Improved water quality in Clear Lake will reduce the cost of treating lake water to drinking water standards; and
- Improved water quality in Clear Lake will reduce the amount of carbon being discharged to Cache Creek and the Bay-Delta.

Flood Control benefits include:

- Reduce flood risk by removing structures at risk of severe flooding as a result of levee failure. The levees proposed for abandonment have settled up to three feet below design grade. The USACE has determined that the levees provide only a four-year level of protection (levees are normally designed to provide a 100-year level of protection) and will overtop during a 35-year flood event, unless emergency flood fight measures are implemented. The area was evacuated in 1983, 1986 and 1998, with evacuation imminent in 1995. Evaluation by the USACE during the Feasibility Study has indicated the levees provide a 25 percent level of protection.
- Should the levees fail, flood damage would be extensive. There are 18 homes and 22 outbuildings subject to flooding should the levees fail. Approximately 1,500 acres of agricultural land would be flooded. Nearly two miles of public roads would be flooded. Because flood depths are great (over 5 feet in most locations) and would extend for extended periods, flood damages would be high. Preliminary flood damage estimates are $3,000,000 to $4,000,000 per event.
- The California Department of Water Resources (DWR) currently maintains the Middle Creek Flood Control Project in the Project area. The Project would remove approximately three miles of substandard levees and one pumping station from the Flood Control Project. These levees were never constructed to proper standards and are the most prone to failure during a major flood event. The pumping station is 40 years old and in need of major repairs, primarily due to age and levee settlement. Reconstruction of the

levees and pump station repair are estimated to be in excess of $6,000,000. The Project would result in lower O&M (estimated at $100,000 per year) and emergency response costs (estimated in excess of $200,000 per major flood event) for DWR and cooperating State and Federal agencies.

Third party benefits are:

- Enhance recreation and tourism by improving the water quality in Clear Lake. In 1994, the USDA Soil Conservation Service [5] estimated that $7 million in tourism is lost annually due to water quality issues in Clear Lake.
- The Project will have an unknown, and possibly beneficial, impact on vector control issues in the area. A diverse wetland and riparian community will replace several hundred acres of rice fields and flood-irrigated pasture. Natural predators may result in lower insect production in the area.

It is anticipated that the Project will impact the Clear Lake ecosystem quickly. The project area was active freshwater marsh less than 80 years ago and already has significant quantities of native wetland vegetation in the project area. The existing vegetation and the inherent soil properties will facilitate rapid re-establishment of the native habitat. Pilot plantings will be used in the Project area to supplement natural revegetation.

Water quality improvement in Clear Lake should be fully realized within 10 years, with some improvement almost immediately apparent. Improved regulation of instream gravel mining was implemented in 1980, with instream mining decreasing each year until 1991, when all instream mining ceased. The clarity of Clear Lake improved significantly in 1991, and has been the clearest in recent memory for the last ten years. Secchi depth measurements conducted by the Department of Water Resources support these observations. We anticipate the reduced phosphorus loading to Clear Lake after the Project is constructed to become apparent within a similar time frame.

**B. Explain how the proposal will help define and illustrate relationships between watershed processes, watershed management, and the primary goals and objectives of the CALFED.**

The Project is very large in relationship to the Clear Lake watershed and should show significant beneficial effects when it is completed. It demonstrates how a project can be designed to meet multiple objectives and provide multiple benefits. The project needs to be completed to show how these objectives and benefits can be met and benefit the community as a whole.

The Department of Water Resources has already used the project as a model of how to evaluate multiple benefits, even though they are normally not considered in the same analysis. The DWR Draft Report *Multi-Objective Approaches to Floodplain Management on a Watershed Basis,* January 10, 2000. The Draft Report will be updated to reflect the feasibility level costs developed by the Corps. Some of the techniques used in preparation of this report have already been incorporated in the Sacramento and San Joaquin River Basin Comprehensive Study. As these methods are refined, they may lead the way the Corps analyzes projects which have multiple objectives and/or benefits.

**C. Identify a lead agency for environmental compliance, such as CEQA or NEPA. Describe the program's strategy and timetable on environmental compliance.**

The Feasibility Study and environmental documentation (EIS/EIR) are being prepared by the USACE at the time this application is being prepared. The Board is serving as lead agency for CEQA and the USACE is serving as lead for NEPA. Draft documents are scheduled for release for public comment in August 2001, with final documents completed and approved by November 2001. Environmental compliance will be complete before design work is started. The environmental documents are being tiered off the CALFED EIS/EIR. AS required by NEPA, environmental justice will be addressed in the EIS/EIR. USACE staff working on this Project are coordinating with USACE staff who worked on the CALFED EIS/EIR to ensure that CALFED's concerns are addressed.

**8. Describe any other important aspects of your program that you could not address in the above items, and that you feel are critical to fully describing your project.**

Public Participation

Public participation has been an integral part of Lake County's management of natural resources. In 1990, the Clear Lake Basin Resource Management Committee (Basin Committee) was formed. The Basin Committee was formalized as a Coordinating Resource Management Planning (CRMP) group and a Memorandum of Understanding was developed. The Basin Committee was formed to facilitate cooperation between the public and government agencies in the management of the Clear Lake Basin. In 1998, the Basin Committee was expanded to include the entire county and was renamed the Lake County Coordinating Resource Management Committee (RMC). The RMC and its issue-based subcommittees draw people together from each of Lake County's watersheds, namely Clear Lake, Cache Creek, Putah Creek and Lake Pillsbury-Eel River.
The RMC functions as a consensus-based partnership approach for the community to manage and restore its valuable natural resources and watersheds.

The Committee's purpose is to maintain and enhance the ecosystem and economy of the Clear Lake Basin.
RMC objectives include:

- Improve coordination of research, planning, land management, and resource management by private, local, state, and federal agencies by sharing information, data collection, research, policy development, and other activities.
- Through a coordinated effort, the Committee will develop comprehensive, technically sound recommendations for orderly and quality development, environmental protection, and wise use of the Clear Lake Basin. The recommendations will address identification and solution of problems concerning the Clear Lake Basin, balancing the environmental concerns, private property rights and the customs and culture of the County.

The RMC includes 28 public members and the following partners:

- County of Lake ( Air Quality, Vector Control, Special Districts, Agriculture Department, Environmental Health and Public Works and Board of Supervisors)
- USDI Bureau of Land Management
- USDA Forest Service
- US Environmental Protection Agency
- State Water Resources Control Board
- Central Valley Regional Water Quality Control Board
- US Army Corps of Engineers
- Dept. of Fish and Game
- State Reclamation Board
- State Dept. of Food & Agriculture
- Local Tribes (7)
- U.C. Davis – Clear Lake Environmental Research Center
- City of Lakeport
- City of Clearlake
- Department of Water Resources
- USDA Natural Resources Conservation Service
- East Lake Resource Conservation District
- West Lake Resource Conservation District
- U.C. Cooperative Extension
- State Lands Commission
- State Boating and Waterways
- Lake County Marketing Program
- Lake County Business Outreach & Response Team

RMC Subcommittees include:

- Clear Lake Advisory Subcommittee
- Water and Land Subcommittee
- Database Subcommittee
- Bio-Resources Subcommittee
- LC Fish and Wildlife Advisory Committee
- Upper Putah Creek Stewardship
- Middle Creek CRMP
- High Valley / Schindler Creek CRMP
- Scotts Creek CRMP
- Kelsey Creek CRMP
- Pillsbury CRMP
- Clear Lake (Upper Cache Creek) Watershed CRMP

The RMC has worked on the following projects:

- Clear Lake Clean Lakes Report (314 & DPW)
- Grading Ordinance (Community Development)
- Erosion Prevention and Education Committee (Community Development)

- Wetlands Policy
- Oak Policy
- Clear Lake Basin 2000 (Special Districts)
- Clear Lake Basin Management Plan (DPW)
- Upper Lake Watershed Analysis (USDA Forest Service & DPW)
- EPA Wetlands Grant (DPW)
- Middle Creek Restoration Project (BIA & Robinson Rancheria)
- Rodman Ranch Acquisition (Lake County Land Trust)
- Middle Creek Ecosystem Restoration Project (DPW)
- Clear Lake Watershed Analysis (205j & DPW)
- Scotts Creek Watershed Project (319h & DPW)
- Community Entrepreneurial Watershed and Water Quality Improvement Grant (USDA Forest Service & DPW)
- Clear Lake Fisheries Management Plan (DFG)
- Groundwater Export Ordinance (DPW)
- Big Valley Groundwater Management Plan (AB 3030, DPW)
- Upper Putah Creek Watershed Management Plan (USACE & USDA NRCS)
- Schindler Creek Watershed Plan (USDA NRCS)
- Non-hydrilla Aquatic Plant Management Program (DPW)
- Clear Lake Economic Study (USDA NRCS)
- Sulphur Bank Mine (USEPA)

As each of these projects was developed and implemented, public input was obtained through the RMC. Projects developed by cooperating agencies, in parentheses, are brought before the RMC to solicit input, while others were developed by the RMC, such as the Wetland and Oak policies. This process has ensured the public's participation in the management of the County's natural resources.

In addition to discussion and input from the RMC, the District and the USACE have conducted a separate public participation program for the Project. Numerous public workshops and meetings have been held during the Reconnaissance and Feasibility Study phases of the Project. These meetings involved stakeholders and landowners in the entire county, including landowners in and adjacent to the Project area. These meetings have solicited input that has been incorporated into the preliminary design. These meetings will continue throughout the design and implementation phases to ensure public involvement in the design and management of the area.

Because of the water quality improvement the Project will have on Clear Lake, there is widespread support of the Project in communities all around Clear Lake. This is the Number 1 priority project for the County Board of Supervisors (also rated Number 1 is Basin 2000, which will start construction in Summer 2001). The Project is supported by the Robinson Rancheria, Upper Lake Rancheria, Scotts Valley Rancheria and the Big Valley Rancheria.

Standard Terms and Conditions

We agree with the Standard Terms and Conditions included in Section 8 of the January 19, 2001 Watershed Program Proposal Solicitation Package. If DWR alters the Terms and Conditions, the District reserves the right to re-negotiate the revisions.

# MIDDLE CREEK ECOSYSTEM RESTORATION PROJECT
## CALFED PROPOSAL
## BUDGET
## April 25, 2001

| Item | Quantity | Units | Unit Cost | Extension | Funding Source | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Rec Board | Corps | CALFED | |
| **Administration** | | | | | | | | |
| Assistant Public Works Director | 234 | hr | $80.00 | $18,720.00 | | | $18,720.00 | $53,376.00 |
| Water Resources Engineer | 400 | hr | $60.62 | $24,248.00 | | | $24,248.00 | |
| Water Resources Specialist | 100 | hr | $37.38 | $3,738.00 | | | $3,738.00 | |
| Right-of-way Agent | 100 | hr | $42.70 | $4,270.00 | | | $4,270.00 | |
| Travel Expenses - Sacramento | 24 | Each | $100.00 | $2,400.00 | | | $2,400.00 | |
| **Design** | 1 | Contract | $1,000,000.00 | $1,000,000.00 | $175,000.00 | $750,000.00 | $75,000.00 | |
| **Reports and Presentations** | | | | | | | | |
| Assistant Public Works Director | 16 | hr | $80.00 | $1,280.00 | | | $1,280.00 | $7,442.00 |
| Water Resources Engineer | 100 | hr | $60.62 | $6,062.00 | | | $6,062.00 | |
| Travel Expenses - Sacramento | 1 | Each | $100.00 | $100.00 | | | $100.00 | |
| **Total** | | | | **$1,060,818.00** | **$175,000.00** | **$750,000.00** | **$135,818.00** | |

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## MIDDLE CREEK ECOYSTEM RESTORATION PROJECT - DESIGN PHASE

## CALFED WATERSHED PROGRAM BUDGET AND PROJECT SUMMARY II

| Task Description | | Completion date | Match funds | CALFED funds | Total |
|---|---|---|---|---|---|
| Task 1: | Administration: | Month 24 | $0.00 | $53,376.00 | $53,376.00 |
| *Task 1a:* | Negotiate contracts, contract administration and billing for services. | | | | |
| *Task 1b:* | Oversee activities of Corps of Engineers, review documents and provide technical assistance. | | | | |
| | Task Product(s): Agreements between the Corps and the Reclamation Board, and the Reclamation Board and the District will be executed. Input provided by District will be incorporated in the plans, specifications and estimates. | | | | |
| | Success Criteria: Success will be measured by ensuring work is kept on schedule and within the agreed upon budget. | | | | |
| Task 2: | Prepare Plans, Specification and Estimates | Month 21 | $925,000.00 | $75,000.00 | $1,000,000.00 |
| *Task 2a:* | Prepare detailed plans, specifications and contract documents for construction of the project. Include final deliniation of land acquisition requirements. | | | | |
| *Task 2b:* | Prepare detailed cost estimates for land acquisition and construction. | | | | |
| | Task Product(s): Detailed plans, specifications, contract documents, and cost estimates | | | | |

## MIDDLE CREEK ECOYSTEM RESTORATION PROJECT - DESIGN PHASE

## CALFED WATERSHED PROGRAM BUDGET AND PROJECT SUMMARY II

| | Task Description | Completion date | Match funds | CALFED funds | Total |
|---|---|---|---|---|---|
| | Success Criteria: Delivery of final documents | | | | |
| Task 3: | Reporting and Presentations | Month 24 | $0.00 | $7,442.00 | $7,442.00 |
| *Task 3a:* | Quarterly progress reports: Progress reports on project implementation, including financial status, milestones reached, products completed, and general assessment of overall progress, including problems encountered or anticipated. | | | | |
| *Task 3b:* | Draft final report: Draft report summarizing the project implementation, achievements, product deliveries, financial status. To be sent to the Contract Manager for review and comment. | | | | |
| *Task 3c:* | Final report: Revised report incorporating comments from the Contract Manager and others. | | | | |
| *Task 4d:* | Presentations: Delivering at least one final summary presentation to CALFED. | | | | |
| | Task Product(s): Quarterly progress reports, draft final report, final report and presentation to CALFED | | | | |
| | Success Criteria: Provide reports and presentation on schedule | | | | |